

VPDES PERMIT PROGRAM FACT SHEET

This document gives pertinent information concerning the **reissuance** of the VPDES permit listed below. This permit is being processed as a **Major Industrial** permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260. The permit addresses discharge of treated industrial wastewater and storm water associated with industrial activity. The discharge results from the operation of facilities which manufacture bleached kraft paperboard and activated carbon. This permit action consists of permit reissuance for a term of five years with updated special conditions, monitoring of stormwater, and limits on outfall 003 (treated wastewater) for pH, 5-day biological oxygen demand (BOD₅), total suspended solids (TSS), dissolved oxygen, seasonal limits on total nitrogen (TN) and orthophosphate (PO₄-P), temperature, color, Adsorbable Organic Halides (AOX) and Whole Effluent Toxicity (WET).

1. **Facility Name and Address:** SIC Codes: 2631 Paperboard Mfg. & 2819 Activated Carbon Mfg.
MeadWestvaco of Virginia, Inc., (Covington Operations)
104 East Riverside Street, Covington, Virginia 24426
2. **Permit No. VA0003646** Expiration Date: February 12, 2012
3. **Reissuance Contact:** Mark C. Allman, Lead Engineer SBS (540) 969-5862
Facility Contact: Thomas G. Botkins, Jr., Environmental Manager (540) 969-5547
Gregory C. Hansrote, VP for Covington Operations (540) 969-5000
4. **Application Complete Date:** August 15, 2011
Permit Drafted By: Susan K. Edwards Date: March 12, 2012 Blue Ridge Regional Office - Roanoke
Reviewed By: Robert S Tate Date: March 29, 2012
Public Comment Period Dates: from May 11, 2012 to June 11, 2012
5. **Receiving Stream: Attachment B** contains a copy of the flow determination memorandum.
Outfalls 003/903 - processed industrial wastewater/impacted by stormwater
Receiving Stream: Jackson River (River mile: 24.64) N 37°48'01", E 79°59'34"
Basin: James River Subbasin: James River (Upper) Section: 12 Class: IV, Mountainous Zone waters
Special Standards: none Tidal: No On 303(d) List: Yes, see section13
7-Day, 10-Year Low Flow: 63.2 MGD 1-Day, 10-Year Low Flow: 63.2 MGD
30-Day, 5-Year Low Flow: 63.2 MGD Harmonic Mean Flow: 63.2 MGD
30-Day, 10-Year Low Flow: 63.2 MGD (less than 1% increase from 2007 reissuance)
Outfalls 004, 005, 006, 007, 008, 009, 010, 012, 013 & 015 - stormwater exposed to industrial activity
Basin: James River Subbasin: James River (Upper); Section: 12; Class: IV, Mountainous Zone waters
Special Standards: none Tidal: No On 303(d) List: Yes, see section13

Outfall 004	(River mile: 0.20)	N 37°47'47", W 79°59'52"	Dunlap Creek
Outfall 005	(River mile: 0.08)	N 37°48'35", W 79°59'19"	Dry Run
Outfall 006	(River mile: 25.20)	N 37°48'20", W 79°59'59"	Jackson River
Outfall 007	(River mile: 25.44)	N 37°48'25", W 79°59'45"	Jackson River
Outfall 008	(River mile: 24.84)	N 37°48'07", W 79°59'47"	Jackson River
Outfall 009	(River mile: 24.52)	N 37°47'54", W 79°59'36"	Jackson River
Outfall 010	(River mile: 24.48)	N 37°47'52", W 79°59'37"	Jackson River
Outfall 012	(River mile: 24.26)	N 37°47'46", W 79°59'38"	Jackson River
Outfall 013	(River mile: 24.25)	N 37°47'45", W 79°59'38"	Jackson River
Outfall 015	(River mile: 24.24)	N 37°47'42", W 79°59'41"	Jackson River
6. **Operator License Requirements:** Class I
7. **Reliability Class:** Class I
8. **Permit Characterization:**
(X) Private () Federal () State () POTW
() Possible Interstate Effect () Interim Limits in Other Document

9. **Discharge Description:** A description of the wastewater treatment system is provided below as taken from the facility's industrial reissuance application and the 2007 VPDES Permit reissuance Fact Sheet.

Discharge Description

Outfall Number	Discharge Source	Treatment	Flow (MGD) long term average
003/903	Treated Industrial Wastewater, sewage & treated stormwater	See description below	32.1
301, 302 & 303	A, B & C bleach lines internal monitoring points	NA	5.6, 5.2 & 2.4 respectively
004, 005, 006, 007, 008, 009, 010, 012, 013 & 015	Stormwater run-off - stormwater associated with industrial activities	NA	NA

The wastewater treatment plant serves a bleached kraft paperboard and activated carbon manufacturing facility. The paperboard mill operates 24 hours per day, 7 days per week. The manufacturing facility produces pulp from raw wood as round wood (first debarked and chipped) or in chip form through the kraft digesting process. The pulp is then washed, bleached and converted into paperboard. The activated carbon portion of the manufacturing facility produces activated carbon from sawdust.

A schematic of the wastewater treatment system and accompanying listing of treatment plant component volumes and retention times, taken from permit application package, are found in **Attachment A**. Also included in **Attachment A** is a listing of Facility Environmental Projects that have been completed to update the facility's efforts to improve conditions and reduce impacts to the Jackson River.

Treatment components for the industrial wastewater treatment plant include two mix tanks, a cooling tower, three primary clarifiers, two plug flow aeration basins, two complete mix aeration basins, two final clarifiers, two sludge belt presses (one is inactive but still available if needed), two sludge screw presses, a phosphate removal system and a sludge thickener. See the excerpt from the application package included in Attachment A for a more thorough description of each of these components, retention times and a process flow diagram of the treatment works.

10. **Sewage Sludge Use or Disposal:** There is a small percent of sanitary sewage (0.6% of the long term average flow) in the mix of wastewater treated at the treatment plant for this facility. The average volume is 0.2 MGD. The treatment plant sludge is processed as described in **Attachment A**, as taken from the permit application package, for disposal on the site at the landfill.
11. **Discharge Location Description:** The permitted activity is the discharge of treated wastewater and stormwater associated with the industrial activity. A portion of the USGS topographic map, which indicates the discharge locations, is included in **Attachment A**.

Name of USGS Topographic quadrangles: Covington and Callaghan, Virginia (159 C & 160 D)

12. **Material Storage:** As a very large industrial facility there is material, particularly raw materials (logs, chipped wood & sawdust), stored in areas where they are exposed to stormwater. Most stormwater run-off is collected and routed to the wastewater treatment plant for treatment before discharging through outfall 003. Other stormwater outfalls include settling ponds prior to discharge. However, some run-off comes in contact with materials that reach stormwater outfalls to the Jackson River without treatment. Some of the smaller drainage areas near the low water bridge near the woodyard have this potential - outfalls 006, 007 & 008. Street sweeping to minimize the tracking of materials and silt fencing at the edge of the river and other activities are pollution prevention practices included to reduce the potential of materials reaching the river. See **Attachment G** for a copy of the application information on the stormwater drainage areas and the material stored in each drainage area. The Permit continues to require submittal of an annual storm water management evaluation report specifically to require the permittee to review stormwater data and pollution prevention practices to consider the need for and means to improve stormwater quality.

13. Ambient Water Quality Information:

The permitted discharges are within the Jackson River basin watershed VAW-I09R. The original 1996 VAW -I04R and VAW-I09R impairments (dissolved oxygen (nutrients), bacteria and general standard (benthic)) were combined in to one in 2002. The [Final 2010 305\(b\)/303\(d\) Water Quality Assessment Integrated Report includes the segment on the](#) List of Impaired (Category 5) Waters in 2010 (DEQ revised and resubmitted on 12/10/10 and approved by EPA on 2/9/11). Portions of the waterbody are listed for general standard (benthic) impairment (24.18 miles), for failure to meet the dissolved oxygen standard (11.19 miles), for PCB in fish tissue (12.43 miles) and for bacterial (12.43 miles) impairment. The impairments cause the segment to fail to support the Water Quality Standard for recreation use, aquatic life use and fish consumption. The causes of the impairments are believed to be a combination of both industrial and municipal point-source discharges and non-point urban runoff. The 2010 Fact Sheet for the segment is provided in **Attachment B**.

The Jackson River Benthic TMDL report for Total Nitrogen and Total Phosphorus nutrient impairment (to address the general standards/benthic and dissolved oxygen impairments) was approved by the EPA on 7/21/10 and the State Water Control Board on 12/9/10. Wasteload allocations for the discharge are included in the TMDL and are discussed in the Effluent Limitations Development section of this Fact Sheet. An excerpt of the Benthic TMDL allocations is included in **Attachment B**.

The TMDL for PCB impairment is scheduled for preparation in 2020. The next reissuance is expected to include two pairs of PCB monitoring using low detection sampling and analysis methods. The two pairs would reflect sampling with and without stormwater contribution to the discharge. A pair of PCB sampling will be due in January 2018 and the next in January 2019.

The bacterial impairment was de-listed in 2008 but was relisted in 2010 but has been attributed to sewer overflows. Repairs have been made and it is anticipated that the segment will once again be delisted in the near future therefore a bacterial TMDL has yet been scheduled.

The Jackson River lies within the Chesapeake Bay watershed. A VPDES General Permit has been issued and MeadWestvaco has coverage under the General Permit for Nutrients (total nitrogen and total phosphorus) Discharges and Nutrient Trading in the Chesapeake Bay Watershed. The General Permit registration number is VAN040070. The General VPDES Permit monitors compliance with the annual total nitrogen and phosphorus allocations for the discharge from outfall 003.

The Flow Frequency Memorandum was updated with this reissuance to summarize critical flows for the receiving stream at the points of discharge. The flows in the Jackson River are governed by the minimum release requirements for the Gathright Dam by the U.S. Corps of Engineers. The Flow Frequency memo is provided in **Attachment B**. Alteration of the manner in which water is released from the Gathright Dam is currently under re-evaluation. Under consideration is the addition of some pulses to the river flow without altering the overall operation of the lake. This pulsed release plan is being considered to allow the river to experience more natural variability of velocity than it currently does.

Stream data is available from STORET stations upstream and downstream of the discharges - JKS030.65, JKS023.88 and JKS023.61. Station JKS030.65 is six miles upstream of the plant located at Clearwater Park at the Route 687 Bridge. Jackson River water samples are collected and analyzed at this station on a monthly basis. Station JKS023.88 is a fish tissue monitoring station at the Covington City Park, 0.76 miles downstream from the 003 discharge. JKS023.61 is also at the Covington City Park. **Attachment B** includes a spreadsheet of STORET data from JKS030.65. Hardness, pH and temperature data collected at station JKS030.65 are used to establish instream background conditions of the receiving waters in effluent limit evaluation. Monitoring data from the last ten years are considered representative of upstream hardness, pH and temperature. Hardness data was not posted after June 2003.

There are no Public Water Supply intakes within 15 miles downstream of the discharge. See **Attachment B** for a copy of the application review memo from the VDH Office of Drinking Water in Lexington.

14. **Antidegradation Review and Comments:** Tier I **X** Tier II ____ Tier III ____

The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier I, or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier II water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier II waters is not allowed without an evaluation of the economic and social impacts. Tier III water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with Tier determination. The receiving waterbody, Jackson River is listed on the 2010 List of Impaired Waters. As indicated above the TMDL for the general standard (benthic) and Dissolved Oxygen is complete and the discharge has seasonal nutrient waste load allocations in the approved TMDL. The discharge is to an impaired segment. In accordance with Guidance Memo #00-2011 the receiving waters are designated a **Tier I** water. Therefore, existing beneficial uses and the quality necessary to protect such uses are to be maintained. Water quality based permit limits are written to be better than or equal to the water quality standards.

The discharges are existing and there is no indication of any proposed increase in the discharge of pollutants during the permit term. As the facility is not proposing any increase in the loading of any pollutants over historical levels, permit limits are in compliance with antidegradation requirements set forth in the Water Quality Standard Regulation, 9 VAC 25-260-30. The antidegradation review and associated effluent limits analyses, below, were conducted as described in Guidance Memorandum 00-2011, dated August 24, 2000, and comply with the antidegradation policy contained in Virginia's Water Quality Standards set forth in 9 VAC 25-260-30.

The 1994 reissuance established baselines for BOD₅ and TSS at the 1985 permit levels. Each permit subsequent to the 1985 reissuance has included a statement that there shall be no increases in effluent limitations for BOD₅ and TSS as a result of production increases. Production increased in recent years are noted below for kraft paperboard and activated carbon. The Covington plant no longer produces corrugating medium.

	<u>Average Daily Production (tons/day)</u>					<u>% change</u>
	<u>1985</u>	<u>1993</u>	<u>1999 appl.</u>	<u>2006 appl.</u>	<u>2006 appl.</u>	<u>(over 1985)</u>
Kraft paperboard:	1821	2233	3600	3400	3400	+ 86.7%
Corrugating medium:	353	345	0	0	0	- 100%
Activated carbon:	58	70	63	70	78	+ 20.7%

If not for the effluent limitations of the permit, production increases would result in increases in pollutant discharges to the receiving waters.

15. **Site Visit:** On December 7, 2011 by Susan Edwards. **Attachment C** contains a copy of the site visit report.

16. **Effluent Screening & Limitation Development:** In accordance with the February 12, 2007 VPDES permit the treated industrial wastewater at outfall 003 effluent has been monitored. The same permit requires monitoring of industrial stormwater at outfalls 004, 005, 006, 007, 008, 009, 010, 012, 013 and 015. Monitoring of the three internal bleach lines is required for outfalls 301, 302 and 303. See **Attachments C, and F** for summaries of Effluent Monitoring Data submitted in compliance with the permit for the most recent 3-years of the current term for outfall 003 and the three bleach lines. See **Attachment G** for 4 years for the stormwater outfalls because monitoring was only required annually.

Effluent limitations and monitoring requirements are based on Virginia's water quality standards (WQS) (9 VAC 25-260-5 et. seq.), DEQ Guidance Memorandum #00-2011, the Virginia General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9 VAC 25-151-10, et seq.), the previous permit, the VPDES Permit Manual as last update and best professional judgment. See the discussion below and **Tables IIA, IIB, IIC, and IID** at the end of this Fact Sheet for a summary of limits and monitoring requirements for each outfall.

Outfall 003 - treated wastewater

A. **Federal Effluent Guidelines:** On April 15, 1998, the EPA published the final Cluster Rule in the Federal Register. On July 7, 1998 EPA published a notice to correct minor errors in the final Cluster Rule published earlier that year. Along with providing air regulations, the Cluster Rule revised effluent limitation guidelines for bleached kraft, soda, and sulfite pulp mills and established effluent limitations effecting chemical wood pulp mill operations. The water portion of the Cluster Rule is found in 40 CFR Part 430 for the Pulp, Paper, and Paperboard Point Source Category. 40 CFR 430 Subpart B - Bleached Paper Grade Kraft and Soda Subcategory applies to this facility. [Previously the Federal Effluent Guideline limitations for the paperboard operations at the plant were found in 40 CFR Part 430 Subpart B and H.] Within Part 430 the general requirements of sections 430.00, 430.01, 430.02, 430.03 and within Subpart B the requirements of 430.20, 430.21, 430.22, 430.24 and 430.28 pertain. See **Attachment F** for a copy of these parts of 40 CFR 430.

Section 430.22, establishes Best Practicable Control Technology currently available (BPT) limits for BOD₅, TSS and pH at existing point sources. For continuous discharging bleached kraft facilities where paperboard, coarse paper, and tissue paper are produced the BPT limits at outfall 003 are:

Parameter	BPT Daily Max. (kg/1000 kg)	BPT Monthly Avg. (kg/1000 kg)
BOD ₅	13.65	7.1
TSS	24.0	12.9
pH	within the range of 5.0 to 9.0 S.U. at all times	

The BPT limitations are based on “annual off-the-machine production divided by the number of operating days during the year.” The permit application projects production to remain at the same level during the permit term at 3400 tons/day (air dried tons/day).

The daily maximum BOD₅ limit at outfall 003 is calculated:

$$\frac{13.65 \text{ kg}}{1000 \text{ kg}} \times \frac{1000 \text{ kg}}{2205 \text{ lb}} \times \frac{2000 \text{ lb}}{1 \text{ ton}} \times \frac{3400 \text{ tons}}{\text{day}} = \mathbf{42,095 \text{ kg/day}}$$

The monthly average BOD₅ limit at outfall 003 is calculated:

$$\frac{7.1 \text{ kg}}{1000 \text{ kg}} \times \frac{1000 \text{ kg}}{2205 \text{ lb}} \times \frac{2000 \text{ lb}}{1 \text{ ton}} \times \frac{3400 \text{ tons}}{\text{day}} = \mathbf{21,895 \text{ kg/day}}$$

The daily maximum TSS limit at outfall 003 is calculated:

$$\frac{24.0 \text{ kg}}{1000 \text{ kg}} \times \frac{1000 \text{ kg}}{2205 \text{ lb}} \times \frac{2000 \text{ lb}}{1 \text{ ton}} \times \frac{3400 \text{ tons}}{\text{day}} = \mathbf{74,013 \text{ kg/day}}$$

The monthly average TSS limit at outfall 003 is calculated:

$$\frac{12.9 \text{ kg}}{1000 \text{ kg}} \times \frac{1000 \text{ kg}}{2205 \text{ lb}} \times \frac{2000 \text{ lb}}{1 \text{ ton}} \times \frac{3400 \text{ tons}}{\text{day}} = \mathbf{39,782 \text{ kg/day}}$$

Section 430.24 provides Best Available Technology (BAT) effluent limitations. Most applicable limitations in this section pertain to each fiber line not using TCF (Total Chlorine Free) technology. The internal limitations and monitoring are discussed following the discussion of **Outfall 003**, under discussion of internal **Outfalls 301, 302 and 303**, within this section of the Fact Sheet. The BAT limitations of this section also include wastewater treatment effluent limitations for Adsorbable Organic Halides (AOX) which is a “bulk parameter that measures the total mass of chlorinated organic matter in water and wastewater.” The AOX limit is based on a bleachroom production term of “unbleached pulp production entering the first stage of the bleach plant ... measured in air-dried-metric-tons (10% moisture).” For continuous dischargers the BAT limits at outfall 003 are:

Parameter	Daily Max. BAT (kg/1000 kg)	Monthly Avg. BAT (kg/1000 kg)
AOX	0.951	0.623

The AOX limit is a mass-based limit which for compliance must be converted to a loading limit. The limit is based on the sum of the daily production of each of the bleach lines. MeadWestvaco operates three lines, Units A, B and C. The total from each Unit was taken from Form 2C, Part 2C.III of the application (this is not a change from the 2007 permit reissuance):

Production of A + B + C Units = 3145 air-dried-tons of unbleached pulp/day (adt ubp/d)

The daily maximum AOX limit at outfall 003 is calculated:

$$\frac{0.951 \text{ kg}}{1000 \text{ kg}} \times \frac{1000 \text{ kg}}{2205 \text{ lb}} \times \frac{2000 \text{ lb}}{1 \text{ ton}} \times \frac{3145 \text{ tons}}{\text{day}} = \mathbf{2713 \text{ kg/day}}$$

The monthly average AOX limit at outfall 003 is calculated:

$$\frac{0.623 \text{ kg}}{1000 \text{ kg}} \times \frac{1000 \text{ kg}}{2205 \text{ lb}} \times \frac{2000 \text{ lb}}{1 \text{ ton}} \times \frac{3145 \text{ tons}}{\text{day}} = \mathbf{1777 \text{ kg/day}}$$

Section 430.24 indicates that COD limits may be implemented at a later time. Until these Federal Effluent Guideline effluent limits are promulgated the DEQ determined, as discussed in a memorandum dated August 20, 1999, addressing Reduced Monitoring Incentive and Other Issues Related to the 1998 Cluster Rule for Pulp and Paper Mills, that monthly COD monitoring shall be included at the outfall of the waste water treatment.

In addition to the Federal Effluent Guideline BPT and BAT effluent limitations, section 430.28 establishes Best Management Practices (BMPs) of the Covington plant. These requirements are discussed in part 19.q. of this Fact Sheet.

There are no Federal Effluent Guidelines associated with the carbon manufacturing operation at the Covington plant.

- B. Mixing Zone analysis: Guidance Memo #00-0011 outlines procedures for defining the mixing zone to be used when setting acute and chronic effluent limits. The outfall 003 discharge to the Jackson River is through a diffuser across the entire width of the river. Complete mix is assumed at the chronic 7Q10 flow and at the acute 1Q10 flow. A copy of the mixing zone discussion from the 1994 reissuance is located in **Attachment C**.
- C. Effluent Data Review: **Attachment C** provides a summary of discharge monitoring data for the last 3 years. A review of the data and limits from the 2007 reissuance indicate discharges are well within compliance for all monitored parameters on a consistent basis. The value closest to limit is highlighted.
- D. Water Quality Standards Monitoring: The special conditions of the 2007 reissuance required two water quality standards monitoring events in 2009 at least 90 days apart during the permit term with results submitted with the application for reissuance using Permit Attachment A provided. A copy of the data included in the application package. Of the data submitted the follows parameters were measured above the quantification level for which monitoring is required (µg/L except as indicated):

<u>Chemical</u>	<u>conc.</u>	<u>conc.</u>
Antimony	2.46	< 0.2
Chromium III	3.0	no result
Lead	0.89	< 0.2
Selenium	4.75	< 2.0
Di-2-Ethylhexyl Phthalate	17.1	< 5.0
Strontium 90 (pCi/L)	2.75	2.83
Beta Particles & Photon Activity (mrem/yr)	42.6	31.5
E. coli (N/cml)	4	2

- E. Application Data: Effluent testing data submitted as part of the application on Form 2C was reviewed to determine if there is "suitable data" for analysis. Suitable data is that which is quantifiable and for which there are water quality standards in the state. The evaluation is of parameters that are not currently limited in this permit to assess the need to include a limit as part of this reissuance. Only the following parameter results were detected:

<u>chemical</u>	<u>conc. max.</u>	<u>load avg.</u>	<u># samples</u>
Total Organic Carbon	60.1 mg/L	7387 kg/day	1 sample
Ammonia, as N	0.85 mg/L	105 kg/day	52 samples
(Ammonia, long term avg. LTA)	0.21 mg/L	26 kg/day	52 samples
Fecal coliform	2 N/C mL	NA	1 sample
Fluoride	0.3 mg/L	37 kg/day	1 sample
Nitrogen, total organic	5.45 mg/L	673 kg/day	52 samples
(Nitrogen, organic LTA)	4.63 mg/L	562 kg/day	52 samples
Phosphorus, total as P	3.90 mg/L	509 kg/day	52 samples
(Phosphorus, total LTA)	1.42 mg/L	187 kg/day	52 samples
Sulfate, as SO ₄	1430 mg/L	179,941 kg/day	25 samples
(Sulfate, total LTA)	1094 mg/L	133,186 kg/day	25 samples
Sulfide, as S	2.9 mg/L	352 kg/day	1 sample
Surfactants	0.21 mg/L	26 kg/day	1 sample
Aluminum, total	1.6 mg/L	197 kg/day	1 sample
Barium, total	0.23 mg/L	28 kg/day	1 sample
Boron, total	0.10 mg/L	12 kg/day	1 sample
Iron, total	0.14 mg/L	17 kg/day	1 sample
Magnesium, total	9.8 mg/L	1204 kg/day	1 sample
Molybdenum, total	0.013 mg/L	1.6 kg/day	1 sample
Manganese, total	0.43 mg/L	53 kg/day	1 sample
Titanium, total	0.007 mg/L	0.9 kg/day	1 sample
Antimony, total	0.002 mg/L	0.24 kg/day	1 sample
Arsenic, total	0.006 mg/L	0.74 kg/day	1 sample
Chromium, total	0.003 mg/L	0.37 kg/day	1 sample
Copper, total	0.004 mg/L	0.49 kg/day	1 sample
Nickel, total	0.002 mg/L	0.25 kg/day	1 sample
Selenium, total	0.003 mg/L	0.37 kg/day	1 sample
Phenols, total	0.062 mg/L	7.6 kg/day	1 sample
Bis (2-Ethylhexyl) Phthalate*18/<5 mg/L	<QL kg/day	2 samples	*believed to be lab contamination

Of this effluent testing data, submitted as part of the application, the list is further reduced by parameters that there are no water quality standards (WQS). There is no freshwater WQS for total organic carbon, fluoride, sulfides, surfactants, aluminum, boron, magnesium, molybdenum, titanium and total chromium. Sulfates, barium, iron or manganese are Public Water Supply WQS parameters and are not relevant to the receiving segment. The Form 2C application total nickel value is below the QL used for WQS monitoring therefore it is considered a non-detectable value and treated as a zero in the statistical evaluation.

There are standards for the nutrients ammonia, nitrate-nitrite as part of total nitrogen and phosphorus in nutrient enriched waters, and the Jackson River general standard (benthic) and dissolved oxygen impairments are related to the nutrient loading. The TMDL for the waterbody is completed and includes allocations for total nitrogen and total phosphorus. Fecal coliform is no longer the freshwater bacterial water quality indicator species. *E. coli* has replaced fecal coliform as the WQS bacteria parameter. The low fecal coliform result indicates that *E. coli* are not a concern.

Therefore, of all the Water Quality Standards monitoring and Application Data the only 'suitable data' requiring further toxics analysis is: ammonia, antimony, arsenic, chromium III, copper, lead, selenium and phenol.

F. Effluent Limitations:

Flow - The maximum 30-day average flow reported on the application form 2C section V, Part A, was 35.28 MGD and a long term average daily flow of 32.14 MGD. The flow from the discharge is not limited but is recorded continuously and reported monthly.

pH - Limitations for pH are **6.0 S.U. minimum** and **9.0 S.U. maximum** according to the WQS 9 VAC 25-260-50 as a Class IV, Mountainous Zone waters. pH is recorded continuously and reported monthly.

Biological Oxygen Demand, 5-day (BOD₅) -Prior to the reissuance of the 1994 permit, DEQ technical services documented DO contraventions in the Jackson River downstream of the MeadWestvaco discharge during stream surveys in 1988, 1990 and 1993. Monitoring during the term of the 1994 permit found DO levels below the State's minimum DO criteria at two downstream locations. The 1994 permit included requirements to reduce temperature discharges to address dissolved oxygen problems. In 1997, a Consent Order was agreed upon between DEQ and MeadWestvaco to address this issue through construction of pollution prevention projects and/or temperature reduction projects. DO data and a new site-specific river model, the Jackson River Periphyton model prepared by HydroQual, were used as the basis for BOD₅ limits in the scheduled 2004 VPDES permit modification in accordance with the terms of the Consent Order. Discharges from previously permitted outfalls 001 & 002 that contributed heat to the Jackson River from non-contact cooling waters have been eliminated as reflected in the 2004 permit modification.

Effluent limits are based on the projection analysis of the Jackson River Periphyton model under specific conditions. The model projects there will be no violations of the instream DO standard with the elimination of the heat loads from outfalls 001 and 002, existing effluent nutrient levels, monthly average BOD₅ limit of 7000 pounds/day and normal releases from the Gathright Dam. This representation of the model projection does not include the use of the effluent oxygenation or down stream/side stream oxygenation system. The critical time of year for dissolved oxygen levels are from June through October. Therefore, from **June through October** the monthly average BOD₅ will be limited to **7000 pounds/day (3175 kg/day)** and these systems should only be needed to achieve the water quality standards for DO if a spill, upset or condition outside the control of the permittee occurs. The model does predict certain instances when the level of dissolved oxygen could approach the instream DO standard. Therefore, the permit includes specific terms that are to be followed by the permittee regarding the use of oxygen to provide some margin of safety with respect to the instream dissolved oxygen standard (see the discussion of special conditions in section 19 below).

A June 6, 2003 memorandum from HydroQual, the MWestvaco water modeling consultant, was submitted in support of the establishing effluent limits from the model BOD₅ levels. A copy of the HydroQual memo is included in **Attachment D**. The 2003 memo addressed the use of the Jackson River Periphyton model to establish both monthly average and daily maximum BOD₅ limits for the tier of June through October. The distribution of the monthly average limit of 7000 pounds/day corresponds to a daily maximum of 18,813 pounds/day. However, rather than using this model value, the permittee has agreed to a **daily maximum** set at the level of the 2002 VPDES Permit and Consent Order of **8390 kg/day (18,500 pounds/day)**. Maintenance of this daily maximum limit increases the probability of compliance with the instream DO standard.

The Jackson River Periphyton Model focuses between June and October when the lowest measurements of dissolved oxygen are most likely to occur. During the other seven months of the year river conditions are less critical. A September 5, 2003 HydroQual memorandum addresses BOD₅ limits for the other seven months of the year, **November through May**. The memo states that a simplified model of the assimilative capacity of the Jackson River supports the higher tiered **monthly average** value of the 1994 and 2002 VPDES permits of **9240 pounds/day (4195 kg/day)**. The **daily maximum** value of **8390 kg/day (18,500 pounds/day)** is continued throughout the year. An excerpt from the 2004 Permit modification Fact Sheet Amendment #1 and copies of the HydroQual memos are in **Attachment D**.

BOD₅ is monitored 4 days/week as a 24-hour flow-proportioned composite sample. This is a reduction in monitoring frequency from 1/day as discussed at the end of this portion of the Fact Sheet under the heading 'Review of Reduced Monitoring Frequency'.

Total Suspended Solids (TSS) - The TSS limits of **17,000 kg/day monthly average** and **33,200 kg/day daily maximum** are carried forward from the 1985 permit. They are considered protective of water quality. No specific rationale for their basis has been found. The limits have been carried forward with

each reissuance and are much more stringent than the FEG limitations of 39,782 kg/day monthly average and 74,013 kg/day as a daily maximum. TSS is monitored 1/week as a 24-hour flow-proportioned composite sample. This is a reduction in monitoring frequency from 1/day as discussed at the end of this portion of the Fact Sheet under the heading 'Review of Reduced Monitoring Frequency'.

Chemical Oxygen Demand (COD) - In accordance with Section 430.24 of the 1998 Cluster Rule COD limits may be implemented at a later time. Until Federal Effluent Guideline effluent limits are promulgated DEQ determined, as discussed in a memorandum dated August 20, 1999, addressing Reduced Monitoring Incentive and Other Issues Related to the 1998 Cluster Rule for Pulp and Paper Mills, that monthly COD monitoring shall be included at the outfall of the waste water treatment. COD is monitored **1/month** as a 24-hour flow-proportioned composite sample.

Temperature – A combined heat load to the river of 6.3×10^8 Btu/hour has been included in VPDES permit discharge monitoring reports since June of 1977. This value appears to be taken from a Phase I ECONO report "Heat Load and Energy Conservation Study" dated January 19, 1978 in which reference was made that at "the present time the mill heat load discharge to the river is 15.1×10^9 Btu per day". 15.1×10^9 Btu per day is equivalent to 6.3×10^8 Btu per hour. Upstream temperature data is available from the STORET station 2-JKS030.65. Upstream flow is available from the USGS gauge at the City Water Filtration Plant. With this upstream information and effluent monitoring of outfall 003 the calculation of heat load can be made any time it is needed. The **maximum** temperature limit on outfall 003, that was continued from the interim outfall 003 limits under the Consent Order, will remain at **43 °C (109.4 °F)**.

Monitoring of effluent temperature of "**1/hour**" to allow for use of contemporary measuring and recording equipment for this parameter. In recognition of the low variability of the wastewater treatment effluent temperature the footnote indicates the limit is an "**hourly average maximum**".

Attachment D includes background information on the temperature limitation.

A 316(a) variance from the Water Quality Standard provision that the Rise Above Natural Temperature not exceed 3 °C as defined in 9 VAC 25-260-60 will remain in effect as a special condition.

Color - The Virginia Water Quality Standard for Color is part of the narrative General Criteria found under 9 VAC 25-260-20 A. The text of the standard is as follows:

"All state waters ... shall be free from substances attributable to sewage, industrial waste, or other waste in concentrations, amounts, or combinations which contravene established standards or interfere directly or indirectly with designated uses of such water or which are inimical or harmful to human, animal, plant, or aquatic life. Specific substances to be controlled include, but are not limited to: ... substances that produce color, tastes, turbidity, odors, or settle to form sludge deposits;..."

The standard is not described in any numerical manner and recommends substances that produce color be controlled but does not describe by how much. The lack of specific numeric criteria for color producing substances causes the limit development to be based on site-specific factors such as stream use and stream size. Therefore, color limitations have been developed on a case-by-case basis using site-specific factors to ensure the general standard is met.

In the early 1970's the NPDES permit for this facility required a treatability study to determine the Best Practicable Technology for removing color from paper pulping operations. The study showed that 50% removal was achievable if lime treatment methods were used. At that time color values were reported on average as 1800 Platinum Cobalt Units (PCU) and the permit staff applied a 50% reduction to develop a limit of 900 PCU for permitting purposes. This analysis is shown in item 1 of **Attachment D**. Along with a limit, the NPDES permit contained special conditions that required treatability studies be conducted to determine if better treatment methods were available to address color up into the late 1980's. No other treatment process was found to be as cost effective as lime treatment.

In 1986 the EPA published new criteria for color which could be used to relate the Virginia General Standard to a numeric value for water supply intakes. The criteria also provided scientific methods for assessment of impacts to the aquatic community. Since this segment of the Jackson River is not

designated as a public water supply (9 VAC 25-260-430) the numeric criteria of 75 PCU cannot be applied in the limit development process. In addition, the nearest water supply intake is over 120 miles downstream at the City of Lynchburg. The intake on the James River in Lynchburg is a backup water supply to a large reservoir on a tributary to the James River, which minimizes the need to withdraw water for water supply purposes on the James River.

The 1986 EPA color criteria related the aquatic life impact of color to photosynthesis by the algae and aquatic plants found in natural systems. If the color was too great it would reduce sunlight penetration through the water column reducing photosynthesis and therefore, reduce primary productivity in the water body. With this new scientific information in hand the 1989 permit required a depth of compensation study be conducted to determine if the color caused a 10% reduction or greater in the depth of compensation of light penetrating into the water column of the Jackson River. The results of this study demonstrated that the depth of compensation did not exceed 10% because the stream was not deep enough to measure such a reduction. The report described it in this manner:

“First, the average depth of the Jackson River is many meters less than the depth of compensation as determined at the upstream control station. While the depth of the river varies with the flow, at flow of 300 cfs, the average depth between the outfall and 20 miles downstream is 0.4 meters in the riffle sections of the river and 1.7 to 2.1 meters in the deeper pool sections of the river. In other words, even if periphyton were constrained to a depth of compensation approximately equal to one percent of the incident light, periphyton downstream of the outfall would not be light limited because the vast majority of potential periphyton substrates downstream of the mill are at depths less than or equal to the depth of compensation downstream of the mill under current color and solids loadings to the river. In other words reducing the levels of color and solids in the river will not significantly increase the amount of primary productivity because periphyton primary productivity is not light limited.”

The measured effluent color values during the study were 750 - 875 PCU. See item 4.b of **Attachment D**. This study verified that the 800 PCU monthly average limit would be protective of the aquatic community and therefore, the water quality standard.

In addition, the 1989 permit required stream studies below the facility to monitor dissolved oxygen in the stream. One of the methods for directly measuring primary productivity in a stream is to measure dissolved oxygen variations over a twenty-four hour period. This diurnal dissolved oxygen variation is attributable to stream algae and aquatic plants actively using photosynthesis to produce oxygen. The diurnal dissolved oxygen variation was very evident in the study results from 1990. Stream stations below the outfall showed 2 mg/l to 4 mg/l variation which indicated a significant amount of primary productivity in the river below the outfall. See item 4.c of **Attachment D**. This indirect evidence further indicates that the color limit of 800 PCU is protective of the water quality standard.

On April 15, 1998 the Cluster Rule for the pulp and paper industry was adopted as the national rule for setting permit limitations from a technology standpoint for this industry. In (the preamble to) the rule, 40 CFR Part 430 C., Effluent Limitations Guidelines and Standards 3. Pollutant Parameters for BAT/NSPS /PSES/PSNS e. *Color and Other Pollutants* found on page 18538 of Volume 63, No. 72, the method for setting color limits is discussed. The rule specifically states that the color limits are to be set on a case-by-case basis in conformance with applicable water quality standards and site-specific factors for each discharge. The analysis discussed above is just such a case decision and because the limit complies or is protective of the water quality standard no other analysis is necessary on a technology basis. The **800 PCU** color limit is protective of the aquatic community down stream of the facility on the Jackson River.

Color is monitored **1/month** as a 24-hour flow-proportioned composite sample. This is a reduction in monitoring frequency from 1/week as discussed at the end of this portion of the Fact Sheet under the heading ‘Review of Reduced Monitoring Frequency’.

Whole Effluent Toxicity - The VPDES permit has required Whole Effluent Toxicity (WET) testing of outfall 003. The 2004 permit modification reevaluated of the bioassay collected since the paper mill’s bleaching process was changed. Following the review of the recharacterization data, the VPDES Permit

as modified required annual chronic testing with *Pimephales promelas* and *Ceriodaphnia dubia*. A Summary of WET data collected since 2001 is included in **Attachment D**.

Historically the treatment plant effluent has shown chronic sensitivity in *C. dubia* reproduction. The chronic WET results since 2001 were evaluated in accordance with Guidance Memo 00-2012. A memorandum providing a summary of the evaluation of this data, the limit development output files are included in **Attachment E**.

This permit reissuance, in accordance with the agency's Toxicity Management Program Implementation Guidance Memo #00-2012, includes a WET limit based on chronic toxicity in *C. dubia*. All data reported since the 2004 modification are in compliance with the WET limit of **3.7 TU_c**. MeadWestvaco has informed DEQ of significant industrial plant projects under construction that are expected to impact the composition of the wastewater treatment plant influent that may change the toxicity of the effluent. Most of the projects are associated with various boilers including the installation of a new biomass boiler. Because effluent toxicity may change with these projects, a **Compliance Schedule of four years** is included before the limit will take effect. See the special condition Part I.B. listing for the Schedule requirements. **Quarterly** WET testing bioassays use three 24-hours flow proportioned composites.

AOX – The BAT limits of **2713 kg/day** daily maximum and **1777 kg/day** monthly average for Adsorbable Organic Halides (AOX) as discussed in the Federal Effluent Guideline discussion above. AOX is monitored **1/week** as a 24-hour flow-proportioned composite sample. This is a reduction in monitoring frequency from 1/day as discussed at the end of this portion of the Fact Sheet under the heading 'Review of Reduced Monitoring Frequency'.

Total Nitrogen and Total Phosphorus - MeadWestvaco has coverage under the General VPDES Permit for Total Nitrogen (TN) and Total Phosphorus (TP) and Nutrient Trading in the Chesapeake Watershed in Virginia as VAN040070. As a "Significant Discharger" in the James River Tributary Strategy the facility has been given allocations of 3.5 mg/l TN and 1.53 mg/l TP at the design flow rate of 35 million-gallons-per-day. The General Permit requires monthly monitoring from the wastewater treatment plant as outfall 500. The limitation is calculated for compliance on an annual basis at 394,400 pounds/year TN and 159,892 pounds/year TP. The General Permit became effective on January 1, 2007 and reissued with an effective date of January 1, 2012.

A local TMDL for the Jackson River, to remove aquatic life impairments, has been approved by EPA. The growing season allocations for the MeadWestvaco discharge are 66,991 lbs TP, **9,379 lbs orthophosphate (PO₄-P)** and **165,245 lbs TN**. A growing season is defined in the TMDL as June – October. Because the orthophosphate component of the TP is the most critical P parameter to the river and was the basis of the TMDL model, the PO₄-P limit will be used as the compliance point rather than both TP & PO₄-P. The allocations are based on a discharge of 1.5 mg/L TP, 0.21 mg/L PO₄-P (measured as filtered orthophosphate) and 3.7 mg/L TN at the design flow of 35 MGD. The limitations are calculated for compliance on a seasonal basis annually from **monthly** monitoring. Monthly load calculations use 24-hour flow proportioned samples for nutrient concentrations. The special condition associated with the pair of limits provides the specifics on calculation of the limits from monitored data.

Dioxin – The 2007 Permit included an effluent limit on dioxin of 14 pg/l and 1.65×10^{-6} kg/day. This limit was monitored annually in conjunction with the inclusion of internal limitations on dioxin at the bleach room at 10 pg/l. The internal limits on dioxin, which are based on Federal Effluent Limitations on Pulp and Paper industries, are discussed below for outfalls 301, 302 and 303. The internal limitations on dioxin are more stringent at 10 pg/l than the 003 limit of 14 pg/l and monitored monthly. The internal limit is on the portion of the facility where dioxin would be formed if created and prior to any mixing with other waste streams entering the wastewater treatment plant which would dilute the concentration. Therefore, the annual monitoring of dioxin is removed and that of the internal bleach lines 301, 302 and 303 retained.

Other Toxic Pollutants - The procedures of Guidance Memo # 00-2011 were followed to assess the need for effluent limitations based on Virginia's Water Quality Standards. Effluent monitoring data indicated that all parameters were reported below the applicable quantification level except for ammonia, antimony, arsenic, chromium III, copper, lead, selenium and phenol. It is assumed that other monitored substances are not present in the discharge at significant levels as discussed in section 16.D. & E. In accordance with the GM 00-2011, the data points for each of these parameters were evaluated. A freshwater free-flowing stream wasteload allocation (WLA) spreadsheet was prepared [MSTRANTI – 2b] for analysis of the toxics data. The WLA spreadsheet uses effluent temperature, hardness and pH data and upstream STORET data for hardness, temperature and pH. The effluent flow rate used in the WLA spreadsheet is the assumed average discharge flow of the treatment plant at 35 MGD. This value is considered more representative of flows and provides a more protective toxics evaluation than lower discharge rates. Other discharge flow rates considered are the average of DMR monthly averages flows over the last 3 years at 32.6 MGD, the application Form 2C long term average at 32.14 MGD, Form 2C maximum monthly average at 35.28 MGD or Form 2C maximum daily value 40.4 MGD.

The STATS.exe agency statistical analysis program was used to perform a reasonable potential evaluation for the need for a limit for each additional toxic parameter with suitable data as discussed in section F above. WLAs from the spreadsheet were entered for each parameter to evaluate the effluent data, taken from application Form 2C and Water Quality Standards Monitoring. Of particular note in evaluating the metals data is that the Virginia Water Quality criteria are in terms of dissolved metals rather than total metals. The metals data from the EPA Form 2C are total metal values. While the data from the Water Quality Standards Monitoring performed in 2009 are dissolved metal values. Total data can be used to demonstrate that no limit is needed but cannot be used to set a limit. Only dissolved data can be used to set a metal limit. The reasonable potential analysis determined that based on the data points no limit is needed for ammonia, arsenic, chromium III, copper, lead and selenium. The antimony and phenol parameters do not have acute and chronic water quality criteria but there are applicable Human Health (HH) water quality criteria. Reported concentrations of these two parameters were far below (less than 0.1% of) the HH criteria and the HH WLA. A comparison of the data and the HH WLA are provided in the effluent toxics data summary page. Therefore the concentration of antimony and phenols are considered insignificant.

See **Attachment D** for a summary of effluent toxics data, the WLA spreadsheet and STATS.exe output files for each toxic parameter. **Attachment E** includes items associated with WET limitation.

Internal Outfalls 301, 302 & 303 - Bleach Plant internal monitoring (see **Attachment F** for CFR Parts)

The application for reissuance provides a description of the bleach plant discharges, monitoring and a flow diagram for the three bleaching lines - A, B & C. On April 15, 1998 the EPA published the final Cluster Rule in the Federal Register. Along with providing air regulations, the Cluster Rule revised effluent limitation guidelines for bleached kraft, soda, and sulfite pulp mills and established effluent limitations effecting chemical wood pulp mill operations. The water portion of the Cluster Rule is found in 40 CFR Part 430 for the Pulp, Paper, and Paperboard Point Source Category. 40 CFR 430 Subpart B - Bleached Paper Grade Kraft and Soda Subcategory applies to this facility upon inclusion in their NPDES permit. Section 430.24(a)(1) provides Best Available Technology (BAT) effluent limitations. The bleach plant lines Unit A, Unit B and Unit C of the facility are labeled outfalls 301, 302 and 303 respectively as internal outfalls which will ultimately discharge through the wastewater treatment plant discharge outfall 003. Applicable BAT limitations in 430.24 are for fiber lines not using TCF (Total Chlorine Free) Technology. Bleach units A, B and C unit are elemental chlorine free (ECF) but are not TCF. 430.24 requires the following **limitations** on the internal outfalls 301, 302 and 303:

<u>parameter</u>	<u>daily max</u>	<u>monthly avg.</u>	<u>frequency</u>
Chloroform	6.92 g/1000kg	4.14 g/1000kg	monthly
2, 3, 7, 8-TCD Dioxin	10 pg/l	NA	monthly
2, 3, 7, 8-TCD Furan	31.9 pg/l	NA	monthly
Trichlorosyringol	2.5 µg/l	NA	monthly

3,4,5-Trichlorocatechol	5.0 µg/l	NA	monthly
3,4,6-Trichlorocatechol	5.0 µg/l	NA	monthly
3,4,5-Trichloroguaiacol	2.5 µg/l	NA	monthly
3,4,6-Trichloroguaiacol	2.5 µg/l	NA	monthly
4,5,6-Trichloroguaiacol	2.5 µg/l	NA	monthly
2,4,5-Trichlorophenol	2.5 µg/l	NA	monthly
2,4,6-Trichlorophenol	2.5 µg/l	NA	monthly
Tetrachlorocatechol	5.0 µg/l	NA	monthly
Tetrachloroguaiacol	5.0 µg/l	NA	monthly
2,3,4,6-Tetrachlorophenol	2.5 µg/l	NA	monthly
Pentachlorophenol	5.0 µg/l	NA	monthly

The limitation on chloroform is a production-based limit based on the “unbleached pulp production entering the first stage of the bleach plant ... measured in air-dried-metric-tons (10% moisture).” For purposes of enforcing the limit the effluent mass-based limitations will be converted to load limits. These limitations apply to the total effluent from each Unit. The permit application provides maximum daily production rates for each line. For example, below is the conversions from mass to load for outfall **301/Unit A** with a maximum daily production rate of 875 tons/day (air-dried-metric-tons of unbleached pulp per day):

daily maximum:

$$\frac{6.92 \text{ g}}{1000 \text{ kg}} \times \frac{1000 \text{ kg}}{2205 \text{ lb}} \times \frac{2000 \text{ lb}}{1 \text{ ton}} \times \frac{875 \text{ tons}}{\text{day}} = 5492 \text{ grams/day}$$

monthly average:

$$\frac{4.14 \text{ g}}{1000 \text{ kg}} \times \frac{1000 \text{ kg}}{2205 \text{ lb}} \times \frac{2000 \text{ lb}}{1 \text{ ton}} \times \frac{875 \text{ tons}}{\text{day}} = 3285 \text{ grams/day}$$

Throughputs for each bleach line and subsequently the limitations remain the same from the 2007 reissuance. The chloroform effluent limits for all three internal outfalls are:

Outfall	production (ADT UBP/day)	daily max. (grams/day)	monthly avg. (grams/day)
301	875	5492	3285
302	950	5962	3567
303	1320	8285	4956

A summary of the monitoring data from these three internal outfalls over the last three years is included in **Attachment C**. All other parameters measured were reported below the required quantification level on all three bleach lines.

903, 004, 005, 006, 007, 008, 009, 010, 012, 013 & 015

Discharge of stormwater associated with industrial activities

The VPDES Permit Manual and Guidance Memorandum #09-2008 were followed in establishing monitoring requirements for storm water outfalls. Monitoring and management requirements applicable to the activities associated with industrial sectors are included in the permit special conditions as taken from the July 1, 2009 reissuance of “General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity” (9 VAC 25-151-10 et seq.) as shown in VPDES Permit Manual Section IN-4. Guidance Memo 96-001 recommends that chemical-specific water quality-based limits not be placed on storm water outfalls at this time because the methodology for developing limits and the proper method of sampling is still a concern and under review/reevaluation by EPA. Exceptions would be where a VPDES permit for a storm water discharge has been issued that includes effluent limitations (backsliding must be considered before these limitations can be modified) and where there are reliable data, obtained using sound, scientifically defensible procedures, which provide the justification and defense for an effluent limitation. Therefore, in lieu of limitations, pollutants are assessed against screening criteria developed solely to identify those pollutants that should be given special emphasis during development and assessment of the Storm Water Pollution Prevention Plan (SWPPP).

Each screening criterion is established as the most stringent of either (1) two times the applicable pollutant's acute criterion, (2) the pollutants waste load allocation, on the basis of the discharge going to a large receiving stream and utilizing conservative assumptions (i.e., Tier 2) or, where applicable, (3) the pollutant's benchmark monitoring concentration as contained in DEQ's VPDES general permit for storm water associated with industrial activity. Any storm water outfall effluent data submitted by the permittee that contained pollutants above the established screening criteria triggered the need for monitoring of that specific pollutant in Part I.A.6 of the permit for that outfall. The screening criteria are then utilized in the permit as a comparative value. Based on the above, monitoring was established for the pollutants noted in the table below.

The SWPPP required by Part I.G.1 of the permit is designed to reduce pollutants in storm water runoff. Semi-annual monitoring for the pollutants noted in the table below is used. Pollutant specific monitoring results above the established comparative value will justify the need to reexamine the effectiveness of the SWPPP and any best management practices (BMPs) being utilized. The goal of the SWPPP is to reduce pollutants to the maximum extent practicable. An annual report is to be submitted to the Regional office and shall include the data collected the previous year with an indication if the SWPPP or any BMPs were modified based on the monitoring results.

The MeadWestvaco Covington facility has 10 exclusively storm water outfalls: 004, 005, 006, 007, 008, 009, 010, 012, 013 and 015. Storm water is also discharged through outfall 003, the wastewater treatment plant outfall, labeled 903 when sampled to reflect monitoring including stormwater. The permit application includes a narrative description of each storm water discharge area and an Inventory of Exposed Material including which outfalls the materials would impact. A table of drainage areas and the amount of impervious area in each area was provided with the application. Copies of both narratives and the drainage area table are in **Attachment G**.

The applicable Industrial Activity Sectors for this site are: Paper and Allied Products Manufacturing Facilities (Sector B), Chemical and Allied Products Manufacturing Facilities (Sector C); Landfills, Land Application Sites and Open Dumps (Sector L); and Steam Electric Power Generating Facilities (Sector O). Other industrial stormwater sectors were considered but determined to not be applicable based on the General Permit's definitions and the primary activities of the mill. Although there are activities covered by these sectors at the facility the activities are ancillary to the primary activity of the mill - manufacturing paperboard and activated carbon. Other industrial stormwater sectors considered were: Coal Pile Runoff [coal stored in silos]; Timber Products (Sector A) [woodyard - related to the Sector B manufacturing]; Glass, Clay, Cement, Concrete, and Gypsum Products (Sector E) [lime kiln - related to Sector B manufacturing]; Land Transportation and Warehousing (Sector P) [vehicle & equipment maintenance not primary activity]; and Treatment Works (Sector T) [sanitary wastewater treatment is minor contribution to treatment plant, approximately 0.6% of discharge]. These are the same sectors considered/included in the 2007 VPDES permit reissuance. **Attachment G** includes the applicability narrative for each sector.

There are five components of the storm water management provisions: effluent limitations and compliance monitoring, analytical monitoring, storm water management evaluation and general storm water conditions; and general and sector-specific storm water pollutions prevention plan (SWPPP) conditions. The special conditions are discussed in section 19 with other special conditions.

- A. **Effluent Limitations & Compliance Monitoring**: There are no industrial activities related to sectors requiring effluent limits associated with storm water discharges. Although the facility has coal fired boilers (Sector O) there is no coal stored in piles located in a manner to allow exposure to stormwater. Coal stored at the facility is within storage silos with transfers from railcars or trucks performed within enclosed areas.
- B. **Analytical Monitoring**: Certain categories of industrial facilities require monitoring of storm water discharges because, due to the nature of the industrial activity or materials stored on site, they have significant potential to contribute pollutants to their storm water discharges. This is called "analytical monitoring" or "benchmark monitoring" and it is placed on the effluent monitoring pages for the storm

water outfalls. This monitoring is done to evaluate the effectiveness of storm water BMPs. Analytical (benchmark) monitoring is done semi-annually. Analysis for 5-day Biological Oxygen Demand (**BOD₅**), **Aluminum**, **Iron** and Total Nitrogen (**N**) are required for stormwater outfalls associated with the industrial sectors listed. Total Phosphorus (**P**) is added to provide additional information on the nutrient load to the river from storm events. Total Suspended Solids (**TSS**) is included because of continued high levels in the stormwater samples.

Industrial Sector (SIC)	parameter(s)	benchmark value
Sector B Paperboard Mills (SIC 2631)	BOD ₅	30 mg/L
Sector C Activated Carbon (SIC 2812-2819)	Aluminum	750 µg/L
Chemical & Allied Products Manufacturing, Industrial Inorganic Chemicals subpart	Iron	1.0 mg/L
	Total Nitrogen	2.2 mg/L
Sector O Steam Electric Generation Facilities (SIC 4911)	Iron	1.0 mg/L
Additional parameters of concern	Total Suspended Solids	100 mg/L
	Total Phosphorus	2.0 mg/L

- C. Stormwater Management Evaluation – The permit requires an annual stormwater management evaluation report be filed to assess the effectiveness of stormwater pollution projects. MeadWestvaco has submitted the plan annually. Based on findings they have adjusted practices and control measures. In addition to the analytical results, the permittee is required to provide the date and duration (in hours) of the storm event(s) sampled; rainfall measurements or estimates (in inches) of the storm event that generated the sampled runoff; the duration between the storm event sampled and the end of the previously measurable (greater than 0.1 inch rainfall) storm event; and an estimate of the total volume (in gallons) of the discharge sampled.
- D. Storm water data: For stormwater discharges is available from the permit application EPA 2F and from annual stormwater effluent data collected as required by the 2007 permit and reported on the DMRs. Outfall 009 has not discharged and therefore there is no data available from that outfall. The DMR data didn't include discharges from the wastewater treatment plant outfall during storm events, outfall 003 labeled as 903 for monitoring when reflecting stormwater impact. The 2007 didn't include the outfall 903 monitoring. A summary of the EPA Form 2F application data for outfalls 003/903, 004, 005, 006, 007, 008, 010, 012 and 015 as well as a summary of the last 4 years of annual stormwater monitoring DMR data for these outfalls (except for outfall 003/903) is provided in **Attachment G**. As stormwater associated with industrial activities the effluent data collected under the 2007 reissuance of the permit and submitted as part of the application were compared to benchmark values - for **BOD₅, Al, Fe, and Total N**. Analysis for Total Suspended Solids (**TSS**), Total Phosphorus (**P**) and Chemical Oxygen Demand (**COD**) were required as part of the annual analytical monitoring for stormwater outfalls. Total P is added to provide additional information on the nutrient load to the river from storm events. TSS and COD were included because of the continued high levels of these parameters in the stormwater samples. Monitoring data values above the benchmark values have been **shaded**. Although some values indicate problems with storm water quality, the area with the largest potential for impacting stormwater contamination is contained within the drainage area treated by the industrial wastewater treatment plant outfall 003/903. Of the 751 acre drainage area of the site over 263 acres are discharged after treatment at the wastewater treatment plant. That is more than 35% of the entire site. There is more than 105 acres of impervious area on the site and of that over 79 acres is treated at the wastewater plant - 75% of the impervious area. A review of the data from the form 2F for outfall 003/903 indicates how well the approach of treating the stormwater by the treatment plant improves the stormwater quality. Although there is only a single data set to review, all effluent data are below the benchmark values expect for COD, the composite total nitrogen and grab total phosphorus, most likely attributable to this being co-mingled discharge of treated stormwater and process wastewater. The environmental staff continues to work at SWPPP measures to improve the quality of stormwater discharges in every area of the site. DMR monitoring for stormwater discharges through outfall 003/903 will be included in the reissuance so there is more data to evaluate the effectiveness of the SWPPP measures.

- E. **Monitoring This Reissuance:** For this reissuance stormwater monitoring will continue for all parameters as the 2007 reissuance except for COD. COD has been removed from the list of monitored parameters in the 2009 renewal of the VPDES General Permit for discharges of stormwater associated with industrial activities. Review of stormwater data submitted appears to indicate a correlation of high COD levels to high TSS levels. TSS will continue to be monitored and control of TSS should provide improvement in COD levels. Stormwater **Flow** is to be estimated and rainfall records maintained in accordance with the stormwater special conditions. Parameters to be monitored are: **BOD₅, TSS, Aluminum total, Iron total, Nitrogen total and Phosphorus total.** Monitoring of stormwater outfalls will be 1/6 calendar months.

Review of Reduced Monitoring Frequency

Guidance Memos 00-2011 and 98-2005 allows for reduced monitoring at facilities with excellent compliance histories. In addition, part IN-2D of the VPDES Permit Manual addresses reduced monitoring frequencies for industrial discharges and IN-5 specifically regarding Pulp and Paper Plants. To qualify for consideration of reduced monitoring, the facility should not have been issued any warning letter (WL), notice of violation (NOV) or unsatisfactory laboratory determinations, or be under any Consent Orders, Consent Decrees, Executive Compliance Agreements, or related enforcement documents during the past three years. None of these enforcement actions have been taken regarding this facility during the last 3 years. Accordingly, the facility qualifies for continuation of the previous reductions in monitoring frequencies.

Both treatment plant effluent limitations and internal outfall limitations are eligible for reduction in frequency. The reductions are based on the ratio of the actual performance versus the permit limit with the reduction floor being annual monitoring. Therefore outfall 003 and the internal bleach plant outfalls 301, 302 & 303 are eligible. See **Attachment C** for a summary of data evaluation from outfall 003 and **Attachment G** for the summary of data from outfalls 301, 302 and 303. Based on that evaluation the following reductions will be included on the limitation pages:

<u>Outfall</u>	<u>parameter</u>	<u>monthly avg.</u>	<u>baseline freq.</u>	<u>reduced freq.</u>
<u>003</u>	BOD ₅	June-Oct. 67%	1/day	4/week
	BOD ₅	Nov.-May 64%	1/day	4/week
	TSS	19%	1/day	1/week
	Color	26%	1/week	1/month
	AOX	10.5%	1/day	1/week
<u>301</u>	Chloroform	9.2%	1/week	1/month
<u>302</u>	Chloroform	4.5%	1/week	1/month
<u>303</u>	Chloroform	2.3%	1/week	1/month

Along with the reduced monitoring qualification, a special condition is included in the permit restoring the monitoring frequencies to the baseline (unreduced) monitoring frequency if a WL or NOV or other related enforcement document is issued to the facility.

17. **Anti-backsliding Statement:** The anti-backsliding requirements set forth in 9 VAC 25-31-220.L.2.b.(1) of the VPDES permit regulations address acceptable circumstances when water quality based effluent limitations may be made less stringent when a VPDES permit is reissued. All water-quality-based limitations are as stringent as the previous permit. Accordingly the anti-backsliding provisions of 9 VAC 25-31-220 L are satisfied.
18. **Compliance Schedule:** (9 VAC 25-31-250) There is a new limitation for Whole Effluent Toxicity. Therefore a compliance schedule is included in the reissuance with semi-annual progress reporting included in the special condition in Part I.B of the Permit.
19. **Special Conditions:** A brief rationale for each special condition is given below, in accordance with the VPDES Permit Manual. Special condition wording is updated in accordance with the Permit Manual.
 - a. **Compliance Schedule** (Part I.B.) – Rationale: see section 16 outfall 003 limit development discussion on WET and section 18 above regarding the special condition.

- b. **Notification Levels** (Part I.C.1) – Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 A for all manufacturing, commercial, mining, and silvicultural dischargers.
- c. **O&M Manual Requirement** (Part I.C.2) - Rationale: Required by Code of Virginia 62.1-44.16; VPDES Permit Regulation, 9 VAC 25-31-190 E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved O&M Manual ensures this.
- d. **Licensed Operator Requirement** (Part I.C.3) - Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 C and The Code of Virginia § 54.1-2300 et seq, Rules and Regulations for Waterworks (18 VAC 160-20-10 et seq.) requires licensure of operators. A class I licensed operator has been required in the 4 previous permits. The staffing requirement is continued due to the complexity and short retention time of the treatment plant, type of wastewater and potential impacts to the receiving stream.
- e. **Material Handling/Storage** (Part I.C.4) – Rationale: 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia 62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharges of industrial waste or other waste.
- f. **Water Quality Criteria Reopener** (Part I.C.5) - Rationale: VPDES Permit Regulation, 9VAC25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of the water quality standards.
- g. **Water Quality Criteria Monitoring** (Part I.C.6) - Rationale: State Water Control Law 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted. In accordance with GM 00-2011, as a major industrial discharger with WET testing required, the permit requires two rounds of water quality monitoring for use in the next permit reissuance. The permit includes an *Attachment A* form for the permittee's use in reporting results from the two events to be collected and analyzed in the third year of the permit, 2015.
- h. **Compliance Reporting** (Part I.C.7) - Rationale: Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J4 and 220 I. This condition is necessary when toxic pollutants are monitored by the permittee and a maximum level of quantification and/or specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values. A paragraph has been added to the standard condition to provide specific reporting regarding AOX, dioxin, furan, chloroform and chlorinated phenolics. This provision was added in the 2002 reissuance with the addition of monitoring of these parameters. This reissuance a section is included to provide direction on calculation of seasonal nutrient loads for compliance with the local TMDL WLAs.
- i. **Total Maximum Daily Load (TMDL) Reopener** (Part I.C.8) - Rationale: Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under Section 303 of the Act.
- j. **Chesapeake Bay Nutrients Reopener** (Part I.C.9) - Rationale: The Virginia General Assembly, in their 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:14 of the law requires the development of a watershed general permit that authorizes point source discharges of total nitrogen and total phosphorus and provides for the control of those nutrients in lieu of the individual VPDES permits, unless the individual permits contain more restrictive limits that are necessary to protect local water quality. This facility is subject to the requirements of 9 VAC 25-820 and has coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia, General Permit registration VAN040070. This individual permit recognizes the Chesapeake Bay Nutrient GP coverage and does not

supersede that coverage. The reopener remains in case there are provisions related to the GP that this individual permit must be reopened to reflect in some manner. There are seasonal nutrient limitations on total nitrogen and total phosphorus included in this individual permits.

- k. 316(a) Variance** (Part I.C.10) - Rationale: Impacts from the thermal discharge to the river have been evaluated in accordance with 316(a) variance requirements. The Water Control Board granted the initial variance to the temperature standard on February 7, 1980. With the elimination of the non-contact cooling water discharges from outfalls 001 and 002 all temperature loads come from the industrial wastewater treatment plant effluent, outfall 003. The new Jackson River - Periphyton model includes the impact on the receiving stream of the heat load for outfall 003. The special condition reflects the continuation of a 316(a) variance from the Water Quality Standards provision that the Rise Above Natural Temperature not exceed 3°C as defined in 9 VAC 25-260-60.
- l. Prohibition of the use of Trichlorophenol or Pentachlorophenol as Biocides** (Part I.C.11) - Rationale: Federal regulations at 40 CFR 430.24(d) require certification by facilities that they are not using certain biocides. Within the application, under the section addressing Cluster Rule information, MeadWestvaco has certified that they do not use either compound as a biocide.
- m. Permit Limitations and Production Rates** (Part I.C.12) - Rationale: This special condition was initially placed in the 1989 permit at the request of the permittee. The wording reflects specifies that the statement applies to discharges from the wastewater treatment plant and does not include the new Federal Effluent Guideline limit on Adsorbable Organic Halides (AOX).
- n. Effluent Monitoring Frequency** (Part I.C.13) - Rationale: Permittees are granted a reduction in monitoring frequency based on a history of permit compliance. To remain eligible for the reduction, the permittee should not have violations related to the effluent limits for which reduced frequencies were granted. If permittees fail to maintain the previous level of performance, the baseline monitoring frequencies should be reinstated for those parameters that were previously granted a monitoring frequency reduction. Condition wording has been modified to clarify NOV parameter to loss of reduction only on that parameter.
- o. Jackson River Dissolved Oxygen Levels** (Part I.C.14) - Rationale: The special condition is continued from the 2004 modification to the permit pertaining to the use of the effluent and side stream oxygenation systems. The condition established how river oxygen levels will be monitored, when the systems are used and the associated monitoring and reporting. The condition requires use of the effluent system when in-river conditions indicate DO levels may be reaching undesirable levels. Reporting of oxygenation system use and related effluent and river conditions can be compared with the projected need to use oxygenation by the Jackson River Periphyton Model.
- p. Whole Effluent Toxicity Program Biological Monitoring** (Part I.D.) - Rationale: VPDES Permit Regulation, 9 VAC 25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. The permit special condition specifies the test procedures required for the quarterly chronic biological toxicity limitation in accordance with Guidance Memo #00-2012 using the most sensitive species.
- q. Sampling methodology for bleach plant effluents** - Outfalls 301, 302 and 303 (Part I.E.) - Rationale: On April 15, 1998 the EPA published the final Cluster Rule in the Federal Register. Along with providing air regulations, the Cluster Rule revised effluent limitation guidelines for bleached kraft, soda, and sulfite pulp mills and established effluent limitations effecting the chemical wood pulp mill operations. The water portion of the Cluster Rule is found in 40 CFR Part 430 for the Pulp, Paper, and Paperboard Point Source Category. 40 CFR 430 Subpart B - Bleached Paper Grade Kraft and Soda Subcategory applies to this facility. The special condition provides specific sampling methodologies for the monitoring of the internal outfalls 301, 302 and 303 of the bleach plant.
- r. Best Management Practices for spent pulping liquor, soap, and turpentine management, spill prevention and control** (Part I.F.) - Rationale: As discussed above for sampling methodology, this requirement is required under the April 15, 1998 Pulp and Paper Cluster Rule. Section 430.28

establishes Best Management Practices (BMPs) applicable to the Covington plant for spent pulping liquor, soap, and turpentine management, spill prevention and control. Condition updated to reflect compliance with earlier dates in 2001 reissuance.

- s. **Storm Water Management** (Part I.G.) - Rationale: VPDES Permit Regulation, 9 VAC 25-31-10 defines discharges of storm water from industrial activity in 9 industrial categories. 9 VAC 25-31-120 requires a permit for these discharges. The Storm Water Pollution Prevention Plan (SWPPP) requirements of the permit are derived from the VPDES general permit for discharges of storm water associated with industrial activity, 9 VAC 25-151-10 et seq. and the VPDES Permit Manual, section IN-4. VPDES Permit Regulation, 9 VAC 25-31-220 K, requires use of best management practices (BMPs) where applicable to control or abate the discharge of pollutants when numeric effluent limits are infeasible or the practices are necessary to achieve effluent limits or to carry out the purpose and intent of the Clean Water Act and state Water Control Law. Different portions of the permit address Storm Water Management, General Storm Water Special Conditions, SWPPP and Industrial Sector Specific requirements. Condition wording specifies submittal of an annual stormwater evaluation report in I.G including monitoring data.
- t. **Conditions Applicable to All VPDES Permits** (Part II) - Rationale: VPDES Permit Regulations, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

20. **NPDES Permit Rating Work Sheet:**

Total Score 150 (Completed work sheet is in **Attachment H**)

21. **Changes to the Permit:** See **Table III** at the end of this Fact Sheet for changes in the effluent limitations from the 2007 permit - during permit processing or during public notice procedures.

Deletions or Modifications to special conditions from the 2007 permit (Special conditions are referenced by the numbering in the 2007 permit.) Special condition wording has been updated in accordance with the Industrial section of the VPDES Permit Manual. Below is the listing of conditions removed or otherwise modified other than the updating of condition wording, renumbering or the conditions in reordering them in the permit:

- B. The special conditions have been reordered and renumbered part of the Part I.C series of conditions with Part I.B now providing the condition on Compliance Schedule.
- E., F. & G. Stormwater conditions updated in accordance with the July 1, 2009 reissuance of the General VPDES Permit for Stormwater Associated with Industrial Activities 9 VAC 25-151 as Part I.G.

Additions to the special conditions

- A new Compliance Schedule condition (Part I.B) has been added with the reissuance in accordance with the new WET limit including semi-annual progress reporting.
- A Water Quality Criteria Reopener condition has been added (Part I.C.5).
- Additional requirements have been added to Condition I.C.7 as instruction in calculating the seasonal nutrient loading calculations associated with compliance with the local benthic TMDL WLA.

Revisions in draft review with permittee:

- Part I.B., Use a 4-year compliance schedule for new WET limit rather than 3 years.
- Specify 180 days rather than 90 days for reporting the update of the O&M Manual required in Special Condition I.C.2. The same time allowed in the last reissuance and the permittee seeks to keep the Manual up to date.

22. **Variances/Alternate Limits or Conditions:** No variances from technology guidelines are known to be used in the development of this permit.

- A 316(a) variance to the water quality standards for temperature is continued with the reissuance. See section 19.k for additional narrative on continuation of condition.
- A waiver was granted for application testing requirements for Dioxin and AOX in stormwater for EPA application Form 2F Part B as they are not expected to be a constituent of the stormwater discharges.

- The 'Other Toxic Parameter' limits evaluation used a higher treatment plant discharge flow than is typical for the Waste Load Allocation spreadsheet. The higher flow is more protective of water quality and considered more representative of reasonable expectations of in-stream impacts as discussed in section 16.
- Condition I.G.2.b. worded to require stormwater monitoring data submittal once/year with Annual Storm Water Evaluation Report of I.G.1.b.

23. **Public Notice Information required by 9 VAC 25-31-280 B:**

All pertinent information is on file and may be inspected or copied by contacting Susan K. Edwards at: **Virginia DEQ, Blue Ridge Regional Office, 3019 Peters Creek Road, Roanoke, VA 24019**; Telephone no. (540)562-6700 or Susan.Edwards@deq.virginia.gov.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may review the draft permit and application at the DEQ Blue Ridge Regional Office by appointment.

24. **Additional Comments:**

Previous Board Action – none

Staff Comments - none

Public Comments - No comments were received during the Public Notice.

Other Agency Comments –

The VDH Office of Drinking Water submitted a memo dated August 29, 2011 to the DEQ request for comment on the application package. The memo reports there are no public water supply raw water intakes located within 15 miles downstream of the discharge. A copy of the VDH-ODW memo is included in **Attachment B**.

The reissuance of this VPDES permit is listed on the Threatened and Endangered Species coordination list for submittal to the Virginia Department of Conservation & Recreation's Natural Heritage Program. The reissuance submittal was made on November 28, 2011 and an automatic reply was received to acknowledge receipt. Comments were provided in a letter of December 19, 2011 with a copy provided to the US Fish & Wildlife Service. No comments were received from USFWS. DCR indicated that the Roughhead Shiner is documented to occur within the mixing zone and endemic to the region. The species is of 'special concern' to the US FWS but does not carry any legal protective status at this time. The letter goes on to state that turbidity and siltation are suspected limiting factors in the distribution of the species. DCR also notes that siltation from construction activities may adversely impact this species. Efforts to improve water quality over time through implementation of the Benthic TMDL and Nutrient TMDLs as well as on-going work to improve the quality of stormwater under the VPDES Permit program should continue to improve conditions for all aquatic species including the Roughhead Shiner. A copy of the autoreply and letter of comment from DCR NHP are included in **Attachment I**.

25. **303(d) List:** The permitted discharges are within the Jackson River basin watershed VAW-I09R. The original 1996 VAW -I04R and VAW-I09R impairments (dissolved oxygen (nutrients), bacteria and general standard (benthic)) were combined in to one in 2002. The Final 2010 305(b)/303(d) Water Quality Assessment Integrated Report includes the segment on the List of Impaired (Category 5) Waters in 2010 (DEQ revised and resubmitted on 12/10/10 and approved by EPA on 2/9/11). Portions of the waterbody are listed for general standard (benthic) impairment (24.18 miles), for failure to meet the dissolved oxygen standard (11.19 miles), for PCB in fish tissue (12.43 miles) and for bacterial (12.43 miles) impairment. The impairments cause the segment to fail to support the Water Quality Standard for recreation use, aquatic life use and fish consumption. The causes of the impairments are believed to be a combination of both industrial and municipal point-source discharges and non-point urban runoff. The 2010 Fact Sheet addressing all impairments for the segment is provided in **Attachment B**.

The Jackson River Benthic TMDL report for Total Nitrogen and Total Phosphorus nutrient impairment (to address the general standards/benthic and dissolved oxygen impairments) was approved by the EPA on 7/21/10 and the State Water Control Board on 12/9/10. Wasteload allocations for the discharge are included in the TMDL and are discussed in the Effluent Limitations Development section of this Fact Sheet. An excerpt of the Benthic TMDL allocations is included in **Attachment B**.

The TMDL for PCB impairment is scheduled for preparation in 2020. The next reissuance is expected to include two pairs of PCB monitoring using low detection sampling and analysis methods. The two pairs would reflect sampling with and without stormwater contribution to the discharge. A pair of PCB sampling will be due in January 2018 and the next in January 2019.

The bacterial impairment was de-listed in 2008 but was relisted in 2010. The impairment has been attributed to sewer overflows. Repairs have been made and it is anticipated that the segment will once again be delisted in the near future therefore a bacterial TMDL has yet been scheduled. An excerpt of the Benthic TMDL allocations is included in **Attachment B**.

The Jackson River lies within the Chesapeake Bay watershed. A VPDES General Permit has been issued and MeadWestvaco has coverage under the General Permit for Nutrients (total nitrogen and total phosphorus) Discharges and Nutrient Trading in the Chesapeake Bay Watershed. The General Permit registration number is VAN040070. The General VPDES Permit monitors compliance with the annual total nitrogen and phosphorus allocations for the discharge from outfall 003.

Fact Sheet Attachments:

- A. Wastewater Treatment Plant
- B. Receiving Waters Information
- C. Site Visit Report & Effluent Screening
- D. Effluent Limitations
- E. Whole Effluent Toxicity
- F. Federal Effluent Limitation
- G. Stormwater Associated with Industrial Activities
- H. NPDES Permit Rating Worksheet
- I. Threatened & Endangered Species

TABLE II A - 003

() Final Limitations
(x) **Interim Limitations**

OUTFALL 003
Long-term Average Flow = 32.1 MGD

Effective Dates
From: Effective Date
To: 3 years after Effective Date

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		Monthly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NL	Continuous	Recording
pH (standard units)	1 & 3	NA	6.0	9.0	1/day	Grab
Biological Oxygen Demand, 5 day (BOD ₅) (June - October)	3 & 4	NL mg/l 3175 kg/d (7000 lbs/day)	NA	NL mg/l 8390 kg/d (18,500 lbs/day)	4/week ^a 1/day	24 HC
Biological Oxygen Demand, 5 day (BOD ₅) (November - May)	3 & 4	NL mg/l 4195 kg/d (9240 lbs/day)	NA	NL mg/l 8390 kg/d (18,500 lbs/day)	4/week ^a 1/day	24 HC
Total Suspended Solids (TSS)	1	NL mg/l 17000 kg/d	NA	NL mg/l 33,200 kg/d	1/week ^a 1/day	24 HC
Chemical Oxygen Demand (COD)	1	NA	NA	NL mg/l	1/month	24 HC
Temperature	3 & 4	NA	NA	43 °C (109.4 °F)	1/hour	Recording
Color	5	800 pcu	NA	NL pcu	1/month ^a 1/week	24 HC
Adsorbable Organic Halides (AOX)	1 & b	NL mg/l 1777 kg/d	NA	NL mg/l 2713 kg/d	1/week ^a 1/day	24 HC
Nitrogen, Total as N (monthly load)	3	NL lbs/month	NA	NA	1/month	calculated
Orthophosphate, filtered (monthly load)	5	NL lbs/month	NA	NA	1/month	calculated
Nitrogen, Total Load June – Oct	3	NA	NA	165,245 lbs	1/year	calculated
Orthophosphate, filtered Load June – Oct.	5	NA	NA	9,379 lbs	1/year	calculated

NA = Not Applicable pcu = Platinum Cobalt Units NL = No Limitations 24 HC = 24 Hour Composite

The basis for the limitations codes are:

1. Federal Effluent Guidelines
2. Best Engineering Judgment
3. Water Quality Standards
4. Other - Jackson River Periphyton model
5. Best Professional Judgment

- a. Note: Monitoring Frequencies will change from rate noted on the top line to bottom line if monitoring frequency reduction is lost. See last portion of section 16 of Fact Sheet for discussion.
- b. AOX BAT limit based on through-put of bleachroom production in “unbleached pulp production entering the first stage of the bleach plant ... measured in air-dried-metric-tons (10% moisture) @ 3145 adt ubp/day from lines A, B & C.

TABLE II B- 003

(x) **Final Limitations**
 () Interim Limitations

OUTFALL 003
 Long-term Average Flow = 32.1 MGD

Effective Dates
 From: 3 years after Effective Date
 To: Expiration Date

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		Monthly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NL	Continuous	Recording
pH (standard units)	1 & 3	NA	6.0	9.0	1/day	Grab
Biological Oxygen Demand, 5 day (BOD ₅) (June - October)	3 & 4	NL mg/l 3175 kg/d (7000 lbs/day)	NA	NL mg/l 8390 kg/d (18,500 lbs/day)	4/week ^a 1/day	24 HC
Biological Oxygen Demand, 5 day (BOD ₅) (November - May)	3 & 4	NL mg/l 4195 kg/d (9240 lbs/day)	NA	NL mg/l 8390 kg/d (18,500 lbs/day)	4/week ^a 1/day	24 HC
Total Suspended Solids (TSS)	1	NL mg/l 17000 kg/d	NA	NL mg/l 33,200 kg/d	1/week ^a 1/day	24 HC
Chemical Oxygen Demand (COD)	1	NA	NA	NL mg/l	1/month	24 HC
Temperature	3 & 4	NA	NA	43 °C (109.4 °F)	1/hour	Recording
Color	5	800 pcu	NA	NL pcu	1/month ^a 1/week	24 HC
Whole Effluent Toxicity (WET)	3	NA	NA	3.7 TU _c	1/3 months	24 HC
Adsorbable Organic Halides (AOX)	1 & b	NL mg/l 1777 kg/d	NA	NL mg/l 2713 kg/d	1/week ^a 1/day	24 HC
Nitrogen, Total as N (monthly load)	3	NL lbs/month	NA	NA	1/month	calculated
Orthophosphate, filtered (monthly load)	5	NL lbs/month	NA	NA	1/month	calculated
Nitrogen, Total Load June – Oct	3	NA	NA	165,245 lbs	1/year	calculated
Orthophosphate, filtered Load June – Oct.	5	NA	NA	9,379 lbs	1/year	calculated

NA = Not Applicable pcu = Platinum Cobalt Units NL = No Limitations 24 HC = 24 Hour Composite

The basis for the limitations codes are:

1. Federal Effluent Guidelines
2. Best Engineering Judgment
3. Water Quality Standards
4. Other - Jackson River Periphyton model
5. Best Professional Judgment

- a. Note: Monitoring Frequencies will change from rate noted on the top line to bottom line if monitoring frequency reduction is lost. See last portion of section 16 of Fact Sheet for discussion.
- b. AOX BAT limit based on through-put of bleachroom production in “unbleached pulp production entering the first stage of the bleach plant ... measured in air-dried-metric-tons (10% moisture) @ 3145 adt ubp/day from lines A, B & C.

TABLE II C - 301, 302 & 303

(x) Final Limitations
() Interim Limitations

INTERNAL OUTFALLS 301, 302 & 303
A, B & C Unit Bleach Lines

Effective Dates
From: Effective Date
To: Expiration Date

The basis for limitations on this internal outfall is the Federal Effluent Guidelines of 40 CFR 430.
Limits are the same for each outfall except for Chloroform which varies by bleach line through-put.

PARAMETER & UNITS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	MONTHLY AVERAGE	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow	NA	NL MG	1/month	Recorded
Chloroform	NL g/l	NL g/l	1/week ^a	24 HC
301	3285 g/d	5492 g/d	1/month	
302	3567 g/d	5962 g/d		
303	4956 g/d	8285 g/d		
Pentachlorophenol	NL µg/l	5.0 µg/l	1/month	24 HC
2,3,7,8 - Tetrachlorodibenzo P Dioxin	NL pg/l	10 pg/l	1/month	24 HC
2,3,7,8 - Tetrachlorodibenzo P Furan	NL pg/l	31.9 pg/l	1/month	24 HC
2,4,5 - Trichlorophenol	NL µg/l	2.5 µg/l	1/month	24 HC
2,4,6 - Trichlorophenol	NL µg/l	2.5 µg/l	1/month	24 HC
Tetrachlorocatechol	NL µg/l	5.0 µg/l	1/month	24 HC
Tetrachloroguaiacol	NL µg/l	5.0 µg/l	1/month	24 HC
Tetrachlorosyringol	NL µg/l	2.5 µg/l	1/month	24 HC
4,5,6 - Trichloroguaiacol	NL µg/l	2.5 µg/l	1/month	24 HC
3,4,6 - Trichlorocatechol	NL µg/l	5.0 µg/l	1/month	24 HC
3,4,5 - Trichlorocatechol	NL µg/l	5.0 µg/l	1/month	24 HC
3,4,5 - Trichloroguaiacol	NL µg/l	2.5 µg/l	1/month	24 HC
2,3,4,6 - Tetrachlorophenol	NL µg/l	2.5 µg/l	1/month	24 HC
3,4,6 - Trichloroguaiacol	NL µg/l	2.5 µg/l	1/month	24 HC

NL = No limitation, monitoring required

24 HC = 24 hour composite

- a. Note: Monitoring Frequencies will change from rate noted on the top line to bottom line if monitoring frequency reduction is lost. See last portion of section 16 of Fact Sheet for discussion.

TABLE II D – 903, 004, 005, 006, 007, 008, 009, 010, 012, 013 & 015

STORM WATER OUTFALLS 903, 004, 005,
006, 007 008, 009, 010, 012, 013 & 015

Effective Dates
From: Effective Date
To: Expiration Date

PARAMETER	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
	Minimum	Maximum	Frequency	Sample Type
Flow, storm water	NA	NL MG	1/6 months	estimated ¹
Biological Oxygen Demand, 5 day (BOD ₅)	NA	NL mg/l	1/6 months	grab ²
Total Suspended Solids (TSS)	NA	NL mg/l	1/6 months	grab ²
Total Nitrogen	NA	NL mg/l	1/6 months	grab ²
Total Phosphorus	NA	NL mg/l	1/6 months	grab ²
Aluminum, Total Recoverable	NA	NL mg/l	1/6 months	grab ²
Iron, Total Recoverable	NA	NL mg/l	1/6 months	grab ²

1. Estimate of the total volume of the discharge during the storm event

2. The grab sample shall be taken within the first three hours of the discharge

1/6 months = once per 6 calendar months, January – June and July - December

NA = Not Applicable

NL = No Limitations

Table III
Permit Processing Change Sheet

Effluent Limits and Monitoring Schedule: (Changes from the 2007 reissuance).

Outfall No.	Parameter Changed	Effluent Limits Changed		Monitoring Changed		Rationale (with reference to FS discussion)
		From	To	From	To	
003	WET	no limit	3.7 TU _c	none	1/quarter	limit after a 4-year compliance schedule (Part 24)
	Nitrogen, total	no limit	NL lbs/month	none	1/month	TMDL monthly calc of nutrient load (Part 24)
	Orthophosphate	no limit	NL lbs/month	none	1/month	TMDL monthly calc of nutrient load (Part 24)
	Nitrogen, Jun-Oct	no limit	165,245 lbs/year	none	1/year	annual calc. of seasonal TMDL load (Part 24)
	Orthophosphate, Jun-Oct	no limit	9,379 lbs/year	none	1/year	annual calc. of seasonal TMDL load (Part 24)
	Dioxin	14 pg/l	no limit	1/year	none	more freq & lower limit in bleach lines where would be produced

Outfall No.	Effluent Limits Changed		Monitoring Changed		Rationale
	From	To	From	To	
All stormwater outfalls	all parameters	no change	1/year	1/6 months	to provide better data on SW measure effectiveness
All stormwater outfalls	COD	removed	1/year	none	no longer included on ISWGP benchmark values list
903	added to SW monitoring to assess impact of stormwater on effluent from the wastewater treatment plant				

Changes During the Public Notice Period:

1. a. On stormwater outfall limitations page, Part I.A.6., changed 3 minimum column designations from 'NL' to 'NA' because result to be monitored is the maximum concentration in stormwater effluent.
- b. In the Compliance Reporting special condition of Part I.C.7. subpart d on 'Nutrient Reporting Calculations' in the first portion regarding the 'Monthly load calculation' the parameter code and name for phosphorus was corrected to '909 (PO₄-P)'.

ATTACHMENT A - Wastewater Treatment Plant

1. Schematic of the wastewater treatment system and a listing of treatment plant component volumes and retention times -taken from permit application package.
2. Process Water Flow & Raw Water Process Flow diagrams from application
3. Listing of Facility Environmental Projects - taken from the permit application.
4. Copy of the USGS Covington and Callaghan quadrangles and an aerial image in the vicinity of the facility.
5. Page 1 of EPA Form 2C and associated description of wastewater treatment system units. Taken from the permit application.

ATTACHMENT B - Receiving Waters Information

1. Excerpt from Final 2010 305(b)/303(d) Water Quality Assessment Integrated Report Attachment A for waterbody Jackson River/James River segment VAW-I09R as List of Impaired (Category 5) Waters in 2010
2. Excerpt from Jackson River Benthic TMDL indicating the facility allocations. Includes discussion of Flow Augmentation with Pulses from Gathright Dam with US Army Corps of Engineers as modification of 216 Study.
3. December 30, 2011 Flow Frequency Memorandum
4. Spreadsheet of STORET data from station JKS030.65 - Route 697 Bridge over the Jackson River at Clearwater Park - upstream temperature, pH and hardness
5. August 29, 2011 memo from Virginia Department of Health, Office of Water Programs, Lexington Field Office stating no public water supply raw water intakes within 15 miles downstream of discharge.

ATTACHMENT C - Site Visit Report & Effluent Screening

1. December 14, 2011 site visit memo prepared by Susan Edwards
2. Mixing zone discussion from 1994 VPDES permit Fact Sheet - outfall 003.
3. Discharge monitoring report data summaries for outfall 003 from January 2009 through December 2011 for flow, pH, TSS, COD, temperature, color, AOX, tiered BOD & dioxin.
4. Outfall 003 effluent temperature, pH & hardness for wasteload allocation spreadsheet calculations.
5. Outfall 003 effluent metals data from application and WQSM; additional hardness data and weekly ammonia data, January through December 2011.
6. Reduced monitoring frequency evaluation spreadsheet for BOD, TSS, Color & AOX from outfall 003.
7. Summary of Whole Effluent Toxicity outfall 003.
8. Summary of internal Bleach Line DMR chloroform monitoring data for Outfalls 301, 302 & 303 including reduced monitoring frequency calculations.

ATTACHMENT D - Effluent Limitations

1. Excerpts from the 2004 VPDES Permit Modification Fact Sheet Amendment #1, regarding “Process Wastewater Effluent Limitations and Dissolved Oxygen Levels in the Jackson River”
 - a. Narrative from Fact Sheet Amendment #1 – pages 1 &2 regarding BOD₅ & temperature limits and modeled Jackson River dissolved oxygen levels.
 - b. 6/6/03 memo from Thomas W. Gallagher of HydroQual to Tim Morse, (Mead)Westvaco on “Derivation of Effluent BOD5 from the Time Variable Models”
 - c. 9/5/03 memo from Ed J. Garland of HydroQual to Tim Morse, MeadWestvaco on “Evaluation of Compliance with Jackson River DO Standards for the Months of Nov. - May”
2. MSTRANTI (draft 2b) Feb. 2012 Waste Load Allocation spreadsheet outfall 003.
3. STATS.exe statistical analysis desktop software printout for outfall 003 evaluation of ammonia using a year of weekly data points from permittee; STATS.exe outputs of Arsenic, Chromium III, Copper, Lead & Nickel.
4. Support background information from permittee on 316a temperature variance.
5. Support to Water Quality Based Color Limit as brought forward from 2002 reissuance;
 - a. Cover & excerpt from 1st Annual Report to State Water Control Board, dated 4/25/72, Treatability Study on removal of color from effluent of the Covington Mill and instream color values from that time.
 - b. Cover & Table 3-9 from the Effects of Color and Solids on the Depth of Compensation and Primary Productivity in the Jackson River, Virginia, dated 4/90.
 - c. Cover & Figure 5 from the Update on the Jackson River Dissolved Oxygen Model, dated 5/24/91.

ATTACHMENT E - Whole Effluent Toxicity (WET)

1. Summary memo on WET evaluation, limit development and incorporation in Permit.
2. WETLIM10 Spreadsheet indicating Acute & Chronic wasteload allocations – WLAc & WLAc
3. STATS.exe output file indicating a limit is required of 3.8 TU_c

1. Description of Bleach Plant discharges from Application & ‘block diagrams’ of Bleach Plant flow from Application
2. Statement from Application regarding biocides
3. Pulp & Paper Cluster Rule applicable excerpts
 - § 430 The Pulp, Paper, and Paperboard Point Source Category pg 16635
 - Index of Category portions
 - § 430.00 – Applicability pg 18636
 - § 430.01 - General Definitions pg 18637 - 18639
 - § 430.02 - Monitoring Requirements pg 18639 - 18640
 - § 430.03 - Best Management Practices (BMPs) pg 18641 - 18643
 - § 430.20 - Subpart B Applicability pg 18647
 - § 430.21 - Specialized Definitions pg 18647
 - § 430.22 - BPT Effluent limitations pg 18647 - 18652
 - § 430.23 - BCT Effluent limitations pg 18652
 - § 430.24 - BAT Effluent limitations pg 18652 - 18655
 - § 430.28 – BMPs pg. 18661

ATTACHMENT G - Stormwater Associated with Industrial Activities

1. Table of drainage areas and amount of impervious area in each from application
2. Description of drainage areas from permit application and permittee explanation of why no discharge data from outfall 009 taken from application
3. List of Material Stored that may be Exposed to Storm Water from application
4. List of Herbicides & Pesticides Used from application
5. Summary of storm water data from Application form 2F
6. Summary of storm water data from annual DMR data
7. Industrial Storm Water Benchmark Values from 2009 Fact Sheet for reissuance of General VPDES Permit for Stormwater Associated with Industrial Activity.
8. Applicability of Industrial Sectors and industrial sector specific requirements for
 - Paper and Allied Products Manufacturing Facilities.
 - Chemical and Allied Products Manufacturing Facilities.
 - Landfills, Land Application Sites and Open Dumps.
 - Steam Electric Power Generating Facilities, including Coal Handling Areas.
 - Other Industrial Sectors considered for Applicability but not used

**Fact Sheet VA0003646
MeadWestvaco, Covington
Attachment H**

ATTACHMENT H - NPDES Permit Rating Worksheet

ATTACHMENT I – Threatened & Endangered Species

1. Automatic reply to November 28, 2011 submittal to the DCR Division of National Heritage Resources website
2. Letter of December 19, 2011 in reply to the DCR Division of National Heritage Resources website submittal